2nd RFC Verification Workshop
Questions from the participants
11/10/2008

MBRFC

Hopefully these can be addressed with exercises/instructions (detailed).or with at least some examples similar to the IVP charting examples online doc http://www.nws.noaa.gov/oh/hrl/verification/ob8/IVPExamples.pdf.

1) The points and clicks to create a meaningful plot used leadtime statistics. What variables work best for the x-axis?
How to interpret the resulting plot(s)? What stats would be useful as a secondary? Does anything have to be predefined in a ".bat" file?

2) The points and clicks for the various categorical stats. By trial and error I figured out had to have a predefined ".bat" file, what is the minimum that must be defined in this file? What is recommended to put in the ".bat" file?
How to interpret plots for OFR, UFR, CSI, Gilbert and ROCAREA? Can all the stats listed in the categorical section use the same batch file?

3) The points and clicks for moments stats. What variables work best for the x-axis?
How to interpret the resulting plot(s)? What stats would be useful as a secondary? Does anything have to be predefined in a ".bat" file?

4) The online doc IVP charting examples... always includes a printout of the batch file... is a batch file required to be defined to make all these various plots or are these example batch files what the user can save off after make a plot with the GUI?

5) The online doc IVP charting examples doesn't really provide a lot of information on interpretation ... after figuring out how to make a plot ... interpreting it is the hardest part.... need lots of help with interpretation. What/where is a good source for learning how to interpret the various stats plots?

APRFC

1) One BIG question is whether the future software development will include upgrades to include a better method for QC'ing data in the archive database? This may not be a big issue for some RFC's, but it certainly is for us.

2) Another question is when will the Hindcaster be implemented and available for all RFC's?

3) Also, are we going to come up with a national consensus on what a 'Raw' forecast is

and how we create it? I have been able with our ATAN fix, to create 'raw' forecasts for the Yukon-Canada forecast group, but I created a separate forecast group to do so and it does include QC'd data.

4) I would welcome additional and more detailed Verification training. I feel like I am just beginning to understand some of the deterministic verification metrics and haven't much of a clue regarding EVS verification.

5) How do we ensure that we are providing verification metrics that are meaningful to our customers? Most of the metrics that I have seen look like the end result of a PhD dissertation, and are about as easy to understand as the original research. We need to have something that is visual as well as tabular and that is vetted by more than just NWS hydrologists. This all falls under the category of "Strategies to communicate verification" and maybe all of this has been dealt with already, but when I look at the AHPS graphics for ensembles, I don't have a lot of confidence that our users even understand our forecasts, much less the verification metrics that we are proposing to provide.

MARFC

For communication strategies:
Are there particular uses of river forecasts that would be more informed, for example, by discrimination than by reliability? Or in general, do all forecast applications benefit from knowing the verification statistics from every category (reliability, discrimination, bias, accuracy)?

CNRFC

1) It appears that a web site will be necessary for national verification. A good start would be to provide a more detailed presentation of the stage forecast verification that we send to OCWWS on this site. Will there be other forecasts that all RFCs will be required to verify? One example would be the probabilistic guidance that the RFCs send to the Rivers and Lakes AHPS on the WFO web site. Or will each RFC decide what they choose to verify?

2) We do a lot of probabilistic forecasting at the CNRFC. Seasonal water supply, spring snowmelt forecasts, and a create-your-own AHPS/ESP forecast function that is on the CNRFC web site. I have little experience with the Ensemble Verification System. Is there any decision in the works for a COMET module on EVS?

ABRFC

1) What products EXACTLY should be archived today in order to facilitate verification in the future? Spell out exactly which items are required.
2) Who exactly is responsible to make sure that the items above are saved?
3) Where should these files be saved? (Assumed it's the ax????)
4) I would like to see demo or two using IVP batch builder.

OHRFC

What data formats cav/will the EVS accept? *.CS file only? Will there or can there be some generic way to get data into the EVS other than *.CS files?
(I ask this because of what we are doing in the ER RFCs with the MMEFS forecasts, particularly using combined time series files from the different NWP ensembles, such as the SREF & GEFSA at different model initializations).

LMRFC

1) My office is interested in expanding our verification efforts to better support the WFO's. Currently our SCH has been visiting some of our WFO's, and has been communicating ME, MAE, RMSE, and Max error to them for their forecast points of interest. I know there are many other statistics out there that we could be utilizing. It just seems that people are more familiar with the ones mentioned above. Any suggestions would be helpful in expanding our efforts.

2) Can IVP be used to verify QPF? We would like to compare FMAP values with basin MAPX and ultimately draft a paper for distribution. (I'd like to get an answer to this one before the workshop if at all possible. We're starting to talk about getting this project going)

WGRFC

1) Is OH/HQ developing a set of standard verification metrics for hydrology and hydrologic forecasting?
2) If so, is consideration given to uniqueness of each RFC and their respective hydrology?
3) If not, will the team be required to come up with a "solution"?
4) Also, it seems that the verification focal points need to have an advanced knowledge of how the database works... Are there plans for some baseline training for focal points on the database(s), to help us meet our requirements?

NWRFC

1) What is the status of the IVP-EVS merger project? Will there be an opportunity for folks to offer suggestions for enhancements based on current experience with the software? If so, who is taking the suggestions and is there a current list to view?

2) In past meetings, we have discussed the need for tools to assess timing errors in verification. Pair subtraction certainly doesn't tell the whole story. For example a "perfectly shaped" forecast with a 5 hour timing offset might be viewed as a miserable failure in a pair subtraction algorithm. In reality, the forecast might have been extremely useful to a customer more concerned with the expected crest than the "exact" timing.

3) One of the requirements that came out of our WR Verification Team effort was the need for a strong re-analysis tool for assessing river forecast performance and disaggregation. It looks like FEWS could possibly possess this kind functionality (with some possible tweaks). Is there anyone looking into this possibility?

4) As we become more dependent (all RFCs) on gridded model forcings and states, we will need powerful tools to perform gridded verification and analysis at the RFCs. What projects are underway to satisfy these requirements?

5) XEFS inputs/results, finer/varied spatial and temporal resolutions, etc. will create a need to perform verification analysis on a variety of new shef "type sources". Are we building the flexibility and capacity in our tools to handle these new requirements?

6) The RFC verification programs are extremely dependent on an Archive Database. What is being done to ensure that our archiving capabilities will allow us to satisfy our current needs and future vision? What actions are being taken to ensure that the evolution of the Archive system is in step with major RFC functions (i.e. Verification, CHPS/FEWS, Ensembles, Calibration, Climatologies/Normals of just about anything related to our mission, etc.).

NCRFC

1) What is the best way to address timing errors in the forecast, e.g. the forecast values are accurate but the timing is off by 12 hours, etc.

2) We typically have two questions from the field in any flood:
- how long until the crest and how high will it be
- how long until it goes back below flood stage.

The recession forecast has become increasingly important in recent years, especially since the implementation of HVTEC. We need to be able to not only quantify well our crest forecasts verify, but how well we do on the recessions also.
Is there a way to have the IVP disaggregate the time series into two components, 1) the

start of the event until the peak, and 2) the receding limb from the peak back to some threshold e.g. flood stage.

3) We also have questions about under what circumstances and for which statistics is it better to use the 'observed' vs. 'forecast' categories for comparison and how can it best be explained what these stats are really telling us. (You get very different answers depending on which option is used and my brain has a hard time knowing if it's telling me what I think I'm asking...or the opposite.)

CBRFC

How do we plan on incorporating the verification activities in to regular use?

SERFC

1) What is the best way to use the verification system on the RAX for QPF verification?

2) What data should be in the postgres database for QPF verification? What data should be in the flatfiles for QPF verification?

COMET

What measures and capabilities will IVP and EVS have a couple years from now? Will they merge?